Networkable Paperless Data Acquisition System

RD8300 Series Starts at

$2395

✔ **6 or 12 Universal Inputs**
✔ **Up to 4 Pulse/Frequency Inputs**
✔ **6 or 12 Relay Outputs**
✔ **Networkable Using Standard Ethernet Port**
✔ **21 CFR Part 11**
✔ **24V Transmitter Power Supply**
✔ **NEMA 4 (IP65) Compliant**
✔ **Locking Media Access Door**
✔ **Onboard Media Drives:**
  • **CompactFlash™**
  • **USB (Memory Stick, External Drive, etc.)**
  • **Smart Digital (SD)**
✔ **Touch Screen Control**
✔ **Direct on Screen Chart Annotation with Integral Stylus**
✔ **Infrared Port**
✔ **Built in OPC Server**
✔ **Built in E-mail Client**
✔ **Shallow Installation Depth 165 mm (6.5")**

Benefits
✔ **Maximum Flexibility Achieved with Universal Inputs**
✔ **Input Pulse Signals Directly from Flow Meters**
✔ **Relay Outputs for Control or Activating Alarms**
✔ **Accessible via LAN or WEB**
✔ **Reduce Cost and Complexity by Providing Transmitter Power Supply**
✔ **No Additional Equipment**

RD8312, $2695, shown smaller than actual size.

Locking media access door closed.

Needed for Harsh Environments
✔ **Media and Data Can Be Locked and Secured**
✔ **Flexibility of Multiple Media Drives**
✔ **Intuitive Icon Driven Touch Screen**
✔ **Write Notes and Comments Directly on Chart for Permanent Storage with Data**
✔ **Remote Control Wirelessly**
✔ **Seamlessly Interfaces with Third Packages Using OPC Standard**
✔ **Send Alarm, Instantaneous Data or Information Anywhere with E-Mail**
✔ **Shallow Depth Allows the Use of Economical and Enclosures for Installation**

The RD8300 is the most advanced paperless recording system available. It incorporates the latest in measurement, communication, interface and processing technologies to deliver unmatched performance for your data acquisition application.

The RD8300 series utilizes a high contrast 142 mm (5.6") color Active Matrix TFT LCD display with a rugged touch screen. Use a finger or the onboard stylus, if you prefer, to perform data entry and system navigation. The front panel is also fully compliant to IP65 for use in dusty or wet areas. An intuitive icon driven menu system guides the user through easy to follow setup and control screens. The display builder feature makes setting up custom screens extremely simple. Design up to 50 custom displays containing various combinations of indicator types such as horizontal and vertical bar graphs, large and small digital indicators and horizontal or vertical trends. On-screen help is available throughout the menu system to assist you during setup and use.
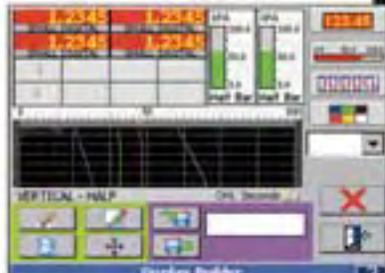
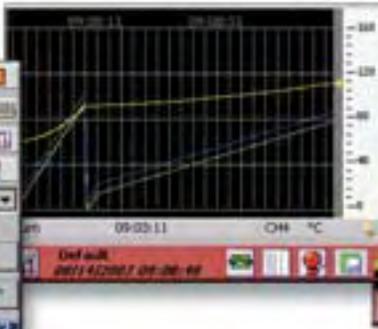**S**

NEW

Intuitive System Menu

Main Menu Setup

Windows® Explorer Menu

Custom Designable Display Screens

Horizontal Trend

Display Builder

Horizontal Trend with Indicators
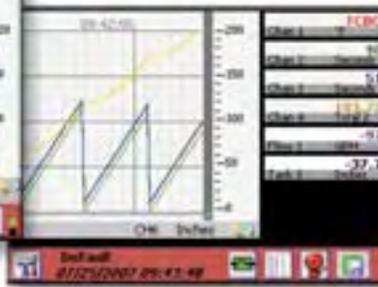
Vertical Trend

Vertical Trend with Bar Graphs
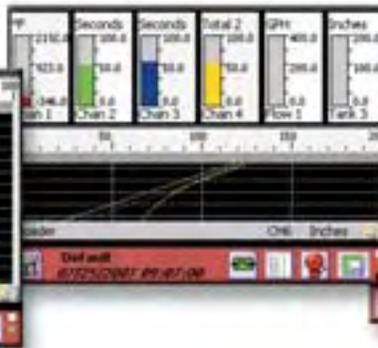
Digital Indicators with Bar Graphs
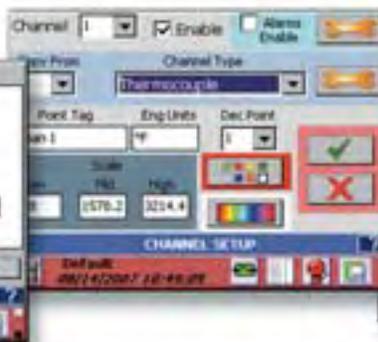
Display Screen Rotation Setup

Channel Setup

On-Screen Help

When it comes to storing data, the RD8300 is extremely flexible. Data can be stored to the non-volatile internal flash RAM or any of the available storage drives including CompactFlash™ and USB provided there is media present.

Programmable record start and stop times allow the user to start and stop recording at predetermined intervals. Data may also be stored to a remote PC via Ethernet using the optional Exhibitor Software. In addition, the built in OPC Server allows any OPC compliant software

client to connect to, communicate with and retrieve data. The RD8300 utilizes many layers of security to protect the integrity of your stored data. All data is stored in an encrypted binary format which prevents data tampering and maximizes compression. The front access media door is lockable to prevent unauthorized access to the internal removable storage media. There are 3 levels of password protection to prevent unauthorized entry into critical recorder function menus. To ensure that data files are

completely error free the RD8300 has a built-in rechargeable Nickel Metal Hydride battery backup system that constantly monitors the incoming power source. In the event of a power loss or power dip, the RD8300 seamlessly switches over to the internal power and begins a safe and controlled system shutdown. When power is restored the recorder immediately returns to the last state of operation. This guarantees that data files will never be corrupted by unexpected power conditions.

Recording Data

Calendar

Removable Media Types

Memory Card

USB Memory Stick

SD (Internal)

Write Directly On the Screen

Make notes, sign files or make other graphic indications directly on the virtual chart in your own handwriting, or use the built-in keyboard to type messages on the screen. Your notes are stored within the data file directory for future review.

The innate feature of handwriting notes and comments on the chart of paper recorders had been lost with the onset of video graphic recorders until the arrival of the RD8300. Using the high-resolution touch screen interface and the integral stylus you can once again make notes or comments directly on the chart. This on-screen annotation is stored within the data file directory and can be recalled and displayed on the recorder or in Exhibitor Software.

Calculator

Powerful Math Package

The onboard math package is extremely powerful. It allows the user to input complex polynomial equations using constants, custom functions and variable inputs obtained from live channels. The resultant information can be displayed and recorded as a real time channel. Using the intuitive calculated channel setup menu the user enters in the formula and can perform a test to make sure the formula is accurate.
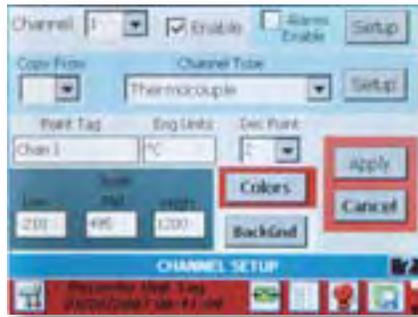
Play unique sound files for each alarm by simply selecting the file you want to play when you set up the alarm.

Unique Sounds

Unique .wav files may be uploaded and played through the internal speaker to alert of specific types of alarms. Use any .wav file, even customize your own spoken word announcements. In areas where there is a high level of ambient noise the alarm .wav files can be output to a P.A. system or amplified speakers via the rear mounted audio connector. Each alarm setpoint can have a unique sound file associated with it. In the alarm setup menu simply select the .wav file you want to play when the alarm is active.

Remote Control

The remote control feature extends the graphic user interface of the RD8300 Series directly onto your local PC. Use remote control and your desktop PC's mouse and keyboard to view real time data, change settings, start and stop recording or virtually anything else you can do with the recorders touch screen. Across the plant or across the planet, remote control empowers you with virtual presence.

Using the record setup menu, the user can select which channels to record, the sample storage rate, whether to record alarms and/or events, and the start/stop time and date for the record session. The location of the data file is selected in this menu along with the data file name. The user can also configure the unit to start or stop recording on an alarm level or an externally triggered input.
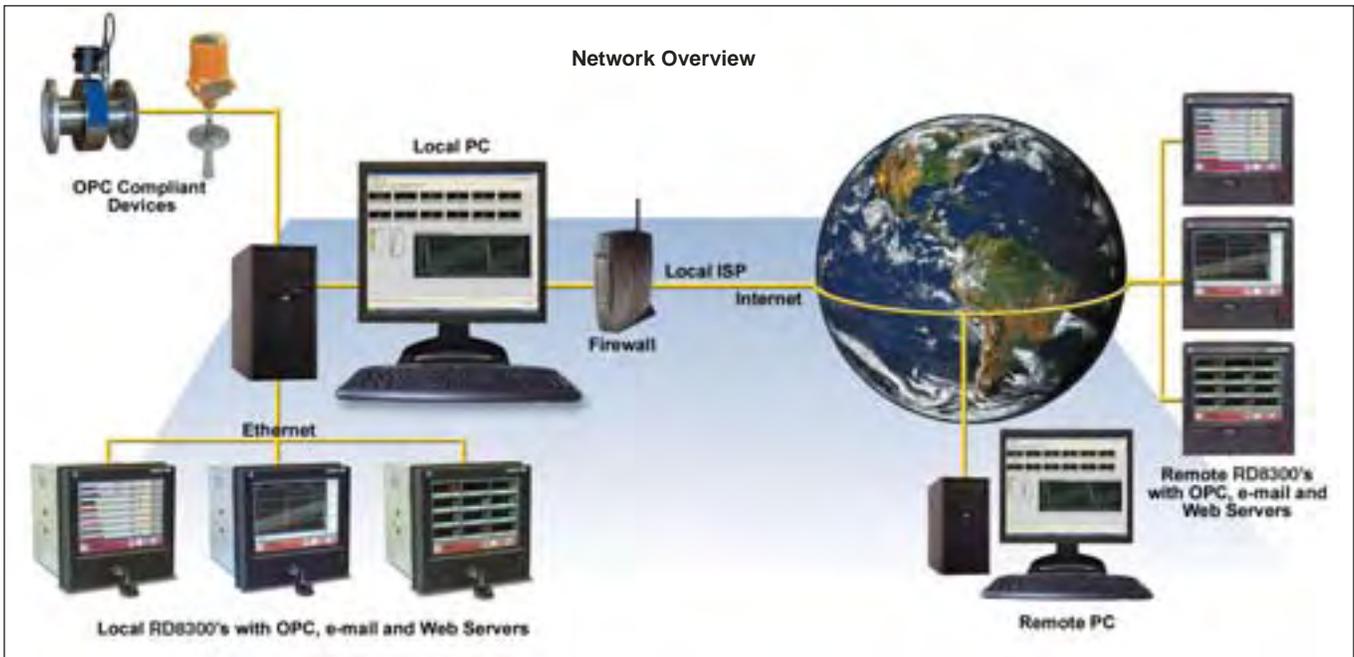
Media Storage Locations
Front Accessible (Lockable):
CompactFlash™, USB host
(for memory stick)
Rear Accessible: USB host, Ethernet
Internal: 128 MB standard
(larger sizes available)

Network Overview

Exhibitor Software
Network Overview

Exhibitor Software is an extremely powerful set of tools that compliments the RD8300 and other OPC compliant devices. Incorporating functions to simplify

data management via searching, reviewing, printing, or exporting historic data, Exhibitor Software allows real-time monitoring and recording independently as well, while historic recording is not affected. Also featured is the OPC

Client which enables the user to build custom screens selecting various display elements and data from multiple OPC Servers, including devices other than RD8300's. (Windows™ XP/2000 Compatible).

Customizable Real-Time View

Use Exhibitors design page features to create custom real time display projects that can be saved and recalled with a click of the mouse. Create bar graphs, digital panel meters, thermometers or trend screens from live data coming from any RD8300 or other OPC compliant device accessible on the network. Using the OPC device manager, Exhibitor allows you to connect to OPC servers anywhere there is a network connection. A user definable list of data is then accessible by the design page, where customized real-time displays are built using the user friendly graphic user interface. To place items, simply point, clicks, and drags. Save your project for future use and the next time it is opened all servers are automatically connected and data will begin displaying immediately. Go one step further, and record real time data to your PC.


Real Time Screen

Select the type of control to be displayed then customize its size, color and location.

Graphical Review

The composite graphical view can display all inputs and calculated data from a particular recording session. The user is able to manipulate the graph to make it easy to see interaction between recorded channels, turn channels off and on, change color schemes, expand, compress, zoom, and print. Individual channels can be displayed for detailed analysis. There is a summary function for the individual channels which provides minimum, maximum, averages and time and date for the records. The same analysis tools used for the multi-channel graph are used to scroll through data, zoom, review and expand the single channel graphs.
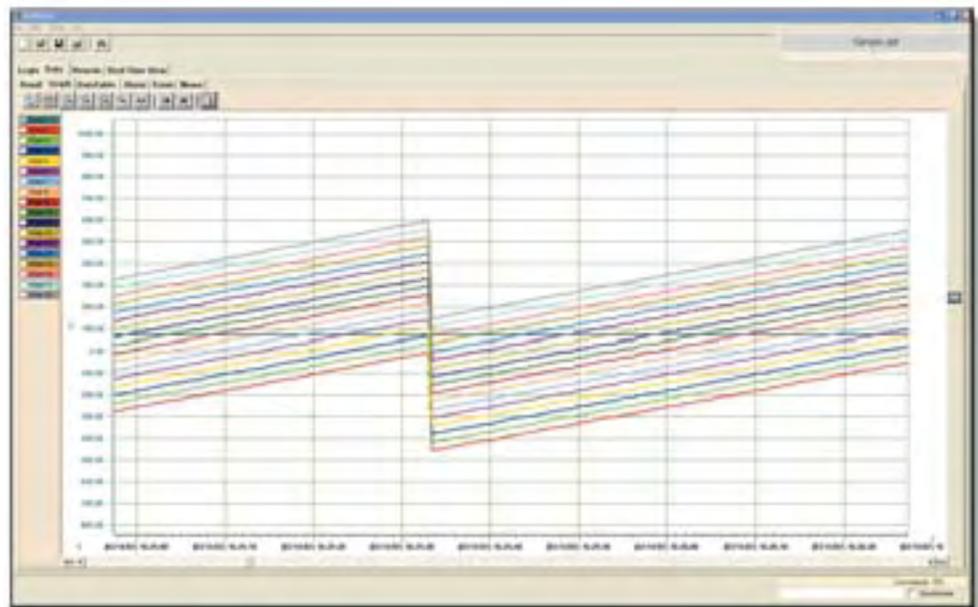
Graphical Review Chart

S-x
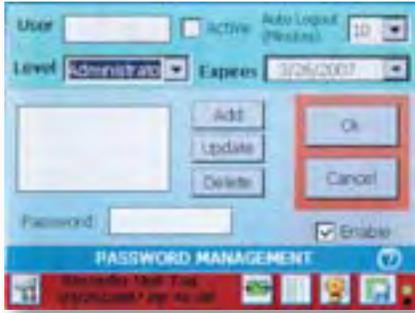
Tabular Data Screen

Tabular Data Review

The data table view displays recorded data in tabular format. All recorded information within a file can be viewed or deselected along with time stamps. Using the one click export feature, the table can be exported to Excel™ in its entirety or in portions. The data table and graph can be synchronized so that they are interactive during analysis of records. Double clicking a value in the data table will automatically bring you to the graph page with that value and time highlighted. Move the cursor over the point and detailed information is provided. Also available are separate alarm, event, and memo review screens. Memo review lists all on-screen annotations in a record.

Specifications

Input Resolution: 0.0015% of full scale, 16 bit unless otherwise stated

Input Impedance: >1 MΩ

Input Channels: 6 or 12 direct input plus 6 additional calculated channels

Maximum Input: 50 Vdc

Isolation:
  Channel to Channel: 350 Vdc or RMS AC
  Channel to Chassis: 2000 Vdc or RMS AC

Isolation Category II: Pollution Degree 2

Measurement Rate: 10 times per second on all direct input channels

Common Mode Noise Rejection: >100 dB, 50/60 Hz, filter enabled

Normal Mode Noise Rejection: >50 dB at 50/60 Hz, filter enabled

Math Functions: Fully programmable +, -, x, /, square root, sine, cosine, tangent, log, totalization, powers, averages, conditional logic; AND, NOT, OR, +, >, <, gated timers; can use live channels in calculation; can define 6 constants and 6 functions per channel

Analog Inputs

DC Voltage: ±125 mV, ±250 mV, ±500 mV, ±1.00V, ±3.0V, ±6.0V, ±12.0V, ±24.0V

Accuracy: Ranges to 1V ±0.06%, Ranges > 1V ±0.1%

DC Current: 4 to 20 mA, 0 to 20 mA, 10 to 50 mA

Accuracy: ±0.15% using external 50 Ω 0.1% ¼ watt shunt

Thermocouple (Per ITS90):
  Resolution: 0.1°C, thermocouple burnout detection: automatic
  Reference Junction Compensation Accuracy: ±2.5°C (0 to 50°C)

T/C Type Range (°C)	Accuracy (°C)	Range (°F)	Accuracy (°F)
J -210 to -100°C	±2.5°C	-340 to -150°F	±5°F
-100 to 1200°C	±1.5°C	-150 to 2190°F	±3°F
K -270 to -100°C	±2.5°C	-450 to -150°F	±5°F
-100 to 1372°C	±1.5°C	-150 to 250°F	±3°F
T -270 to -100°C	±2.5°C	-450 to -150°F	±5°F
-100 to 400°C	±1.5°C	-150 to 750°F	±3°F
E -270 to -100°C	±2.5°C	-450 to -150°F	±5°F
-100 to 1000°C	±1.5°C	-150 to 1832°F	±3°F
N -270 to -100°C	±2.5°C	-450 to -150°F	±5°F
-100 to 1300°C	±1.5°C	-150 to 2372°F	±3°F
S -50 to 1768°C	±3°C	-58 to 3200°F	±6°F
B 0 to 1820°C	±4°C	32 to 3300°F	±7°F

RTD

Base Accuracy: 0.2% or 0.5°C (1°F)

Resolution: 0.1°C, 2 or 3 wire connection; cable compensation to +50 Ω, open and short circuit detection

RTD Type	Range (°C)	Range (°F)
100 Ω Plt 385	-220 to 85°C	-364 to 1560°F
100 Ω Plt 392	-180 to 820°C	-292 to 1500°F
200 Ω Plt 385	-220 to 400°C	-364 to 750°F
200 Ω Plt 392	-180 to 400°C	-292 to 750°F
100 Ω Ni	-70 to 300°C	-94 to 570°F
120 Ω Ni	-70 to 300°C	-94 to 570°F
1000 Ω Ni	-60 to 209°C	-76 to 408°F
10 Ω Cu	-70 to 170°C	-94 to 338°F*

* 0.5% ±0.5°C

Frequency Inputs (2 or 4 Channels):
  Range: 0 to 5000 Hz all channels, 0 to 10,000 Hz 1 channel
  Accuracy: 0.005% ±1 digit

Recording

Recording Rates: User programmable from 10 samples per second to 1 sample every 24 hours

Data Format: Proprietary encrypted format, user file naming

Data Storage Capacity: Data stored in non-volatile RAM and recorded automatically to:
  Removable Media Types: CompactFlash™ or USB drive to 4 GB
  Internal Media Type: SD card (secure digital) to 4 GB

File Types: Data files, alarm and event files, configuration files, language files, multiple files of different names on a single disk

Display

Type: Color CCFL backlit active matrix TFT liquid crystal display

Size: 142 mm (5.6") diagonal

Resolution: 320 W x 240 H pixels

Interface: Resistive analog touch screen control

Display Builder: Allows user to create custom displays

Display Modes: Graphic trending (vertical or horizontal), bar graphs (vertical or horizontal), digital meter (large or small), alphanumeric alarm and event log

Virtual Chart Speed: Programmable from 10 mm/hr to 10,000 mm/hr (0.5 inch/hour to 600 inches/hour)

Display Windows: Time/date, graphics (bars, large digital, trends) disk status, system status, menu button bar, unit identification, alarms/events

Communications

Network: 10/100 Base T Ethernet per 802.3, RJ45 connection

Servers: Webserver supports http and ftp protocols, OPC Modbus over ethernet server

Serial: Isolated RS485/RS232 Modbus® interface (option)

Power

Requirements: 100 to 240 Vac, 50/60 Hz; 35 VA max optional ±15%

Power Fail Protection: Programmed parameters stored in non-memory; clock battery backed; internal battery backup provides shutdown and the ability to survive brownouts and short blackouts seconds)

Power Output: Optional isolated 24 Vdc @ 120 mA output

Input/Output

Digital I/O: 6 or 12 relay outputs, form A (normally open SPST contacts) rated at 200 Vdc @ 0.5 A max, 2 digital control inputs +5 to +12 Vdc @ 20 mA (optional), control inputs may be used for record start/stop, alarm acknowledge and channel reset functions

Safety and Environmental

Operating Range:

Protection: IP65 when mounted in panel

Safety: Meets the requirements accordance of EN61010-1 when installed in accordance with the instructions in the manual
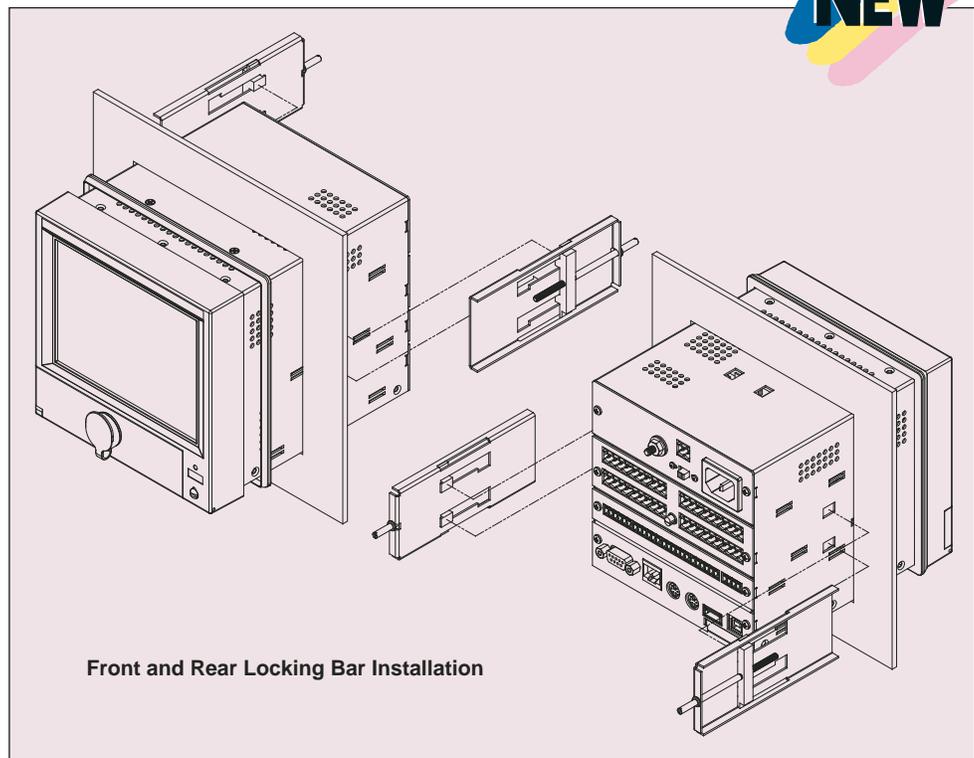
UL and cUL: Pending

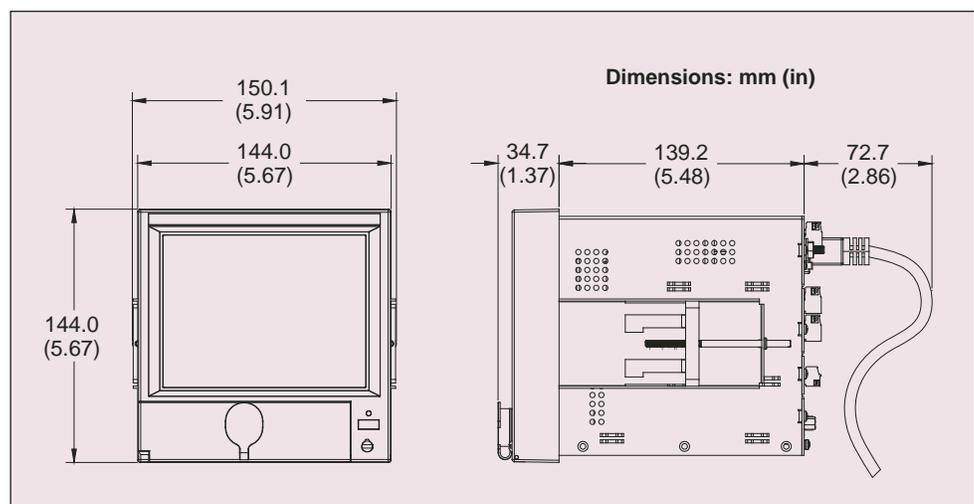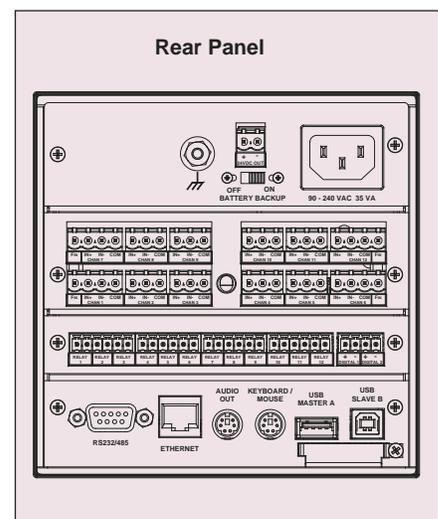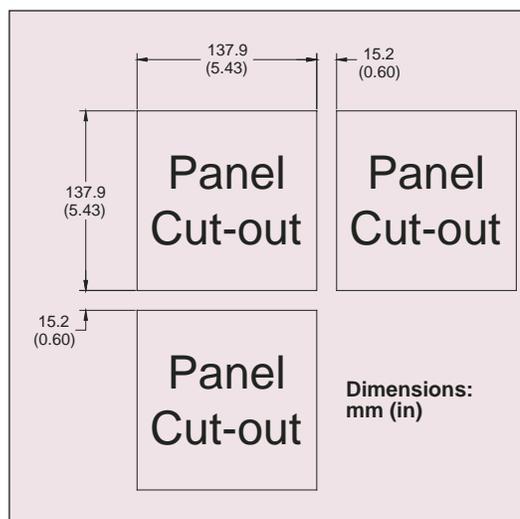**EMC:** Meets the requirements of EN61326.2003 and CE directive 89/336/EEC

Weight: Approximately 3.17 kg (7 lb)

Standard Features

- 142 mm (5.6") color QVGA TFT LCD display with touch screen and integral stylus
- CompactFlash™ drive (front), USB thumb drive port (front)
- USB master (rear), USB slave (rear), Internal memory
- Mouse/keyboard connection (rear)
- Audio: line in, line out, microphone (rear)
- RJ45 ethernet port (rear)
- NEMA 4 (IP65) front bezel with locking media drive door

Front and Rear Locking Bar Installation

137.9 (5.43)   15.2 (0.60)

137.9 (5.43)

15.2 (0.60)

Panel Cut-out   Panel Cut-out

Panel Cut-out

Dimensions: mm (in)

Rear Panel

Dimensions: mm (in)

150.1 (5.91)

144.0 (5.67)

144.0 (5.67)

34.7 (1.37)   139.2 (5.48)   72.7 (2.86)

S-x

S

To Order *(Specify Model Number)*

Model No.	Price	Description
RD8306	$2395	6 universal inputs, 6 math channels, 100/240 Vac, 128 MB internal memory
RD8306-DC	2550	6 universal inputs, 6 math channels, 12 to 24 Vdc, 128 MB internal memory
RD8306-ST	2420	6 universal inputs, 6 math channels, 100/240 Vac w/screw terminals, 128 MB internal memory
RD8306-R6	2595	6 universal inputs, 6 math channels, 100/240 Vac, 128 MB internal memory, 6 form A relay, 0.5 A @ 200 Vdc, 2 control inputs
RD8306-R12	2695	6 universal inputs, 6 math channels, 100/240 Vac, 128 MB internal memory, 12 form A relay, 0.5 A @ 200 Vdc, 2 control inputs
RD8306-C24	2545	6 universal inputs, 6 math channels, 100/240 Vac, 128 MB internal memory, RS232/485 serial communication
RD8306-XP	2495	6 universal inputs, 6 math channels, 100/240 Vac, 128 MB internal memory, 24 Vdc, 120 mA transmitter power supply
RD8306-2GB	2595	6 universal inputs, 6 math channels, 100/240 Vac, 2 GB internal memory
RD8306-2GB-R12-C24-XP	3145	6 universal inputs, 6 math channels, 100/240 Vac, 2 GB internal memory, 12 form A relay, 0.5 A @ 200 Vdc, 2 control inputs, RS232/485 serial communication, 24 Vdc 120 mA transmitter power supply
RD8312	2695	12 universal inputs, 6 math channels, 100/240 Vac, 128 MB internal memory
RD8312-DC	2850	12 universal inputs, 6 math channels, 12 to 24 Vdc, 128 MB internal memory
RD8312-ST	2720	12 universal inputs, 6 math channels, 100/240 Vac with screw terminals, 128 MB internal memory
RD8312-R6	2895	12 universal inputs, 6 math channels, 100/240 Vac, 128 MB internal memory, 6 form A relay, 0.5 A @ 200 Vdc, 2 control inputs
RD8312-R12	2995	12 universal inputs, 6 math channels, 100/240 Vac, 128 MB internal memory, 12 form A relay, 0.5 A @ 200 Vdc, 2 control inputs
RD8312-C24	2845	12 universal inputs, 6 math channels, 100/240 Vac, 128 MB internal memory, RS232/485 serial communication
RD8312-XP	2795	12 universal inputs, 6 math channels, 100/240 Vac, 128 MB internal memory, 24 Vdc, 120 mA transmitter power supply
RD8312-2GB	2895	12 universal inputs, 6 math channels, 100/240 Vac, 2 GB internal memory
RD8312-2GB-R12-C24-XP	3445	12 universal inputs, 6 math channels, 100/240 Vac, 2GB internal memory, 12 form A relay, 0.5 A @ 200 Vdc, 2 control inputs, RS232/485 serial communication, 24 Vdc, 120 mA transmitter power supply

Comes with complete operator's manual.
Ordering Example: RD8306-ST, *6 universal inputs, 6 math channels, 100/240 Vac with screw terminals,128 MB internal memory,* **$2420.**
RD8312-R12, *12 universal inputs, 12 form A relay,* **$2995.**

Options (Field Installable)		
Model No.	**Price**	**Description**
RD8300-6CH	$350	6 channel adder module with connectors
RD8300-R6	250	6 form A relay output module with connectors
RD8300-R12	350	12 form A relay output with connectors
RD8300-XP	150	24 Vdc transmitter power supply module with connector
Accessories		
RD8300-SW	$249	Windows® XP/Vista compatible software program
RD8300-21CFR-CS	N/C	21CFR p.11 compliance statement
RD8300-21CFR-CDP	500	21CFR p.11 compliance documentation package
RD8300-NIST	600	NIST traceable certificate of calibration with documentation
RD8300-50OHM	10	50 Ω external shunt resistor 0.1% accuracy
RD8300-NYLONCC	95	Padded nylon carrying case with shoulder strap
RD8300-CFCR	50	Compact flash card reader for USB connection
RD8300-AUDIOSPLITTER	45	Splitter for audio port (includes cable)
RD8300-KEYSPLITTER	45	Splitter for keyboard and mouse port (includes cables)
RD8300-STYLUS	10	3 pack of stylus
RD8300-KEYS	10	Replacement media flap key (pair)
RD8300-256MBCF	40	256 MB compact flash card
RD8300-512MBCF	60	512 MB compact flash card
RD8300-1GBCF	75	1 GB compact flash card
RD8300-2GBCF	100	2 GB compact flash card

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• pH and Conductivity

Conductivity Instrumentation, Dissolved Oxygen Instrumentation, Environmental Instrumentation, pH Electrodes and Instruments, Water and Soil Analysis Instrumentation

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• Heaters

Band Heaters, Cartridge Heaters, Circulation Heaters, Comfort Heaters, Controllers, Meters and Switching Devices, Flexible Heaters, General Test and Measurement Instruments, Heater Hook-up Wire, Heating Cable Systems, Immersion Heaters, Process Air and Duct, Heaters, Radiant Heaters, Strip Heaters, Tubular Heaters